

HUMAN ANATOMY AND PHYSIOLOGY

CHAPTER 17b: SPECIAL SENSES: Hearing and Equilibrium

1. Describe the role of the auricle (pinna) in hearing.
2. Describe the role of the tympanic membrane in hearing. How would a perforation in it impair hearing?
3. Explain how a clear connection between the middle ear and the pharynx (auditory or Eustachian tube) is important if you are going to travel in an airplane.
4. What are the auditory ossicles and what is their role in hearing?
5. Describe the important roles of the Tensor tympani and the Stapedius muscles in preventing hearing loss.
6. Identify the following terms on the diagram on the next page. Tympanic membrane; Malleus, Incus, Stapes; Oval window; Round window; Cochlea; Auditory nerve; Eustachian (auditory) tube, Semi-circular canal, external acoustic canal (meatus).
7. Describe the role of the otoliths and hair cells of the saccule and utricle in sensing body orientation.
8. Describe the roles of the endolymph, cupula, hair cells, and the semicircular canals in detecting acceleration.
9. Label the diagram of the Organ of Corti region.
10. Describe the difference between the frequency (pitch) and the intensity (loudness) of sound. What are the units for these?
11. Distinguish between nerve deafness and conduction deafness.
12. Beginning with a sound wave in the air entering the external auditory canal, trace the energy through the ear until it is perceived as a sound in the brain. Explain how sound pitch and intensity are determined by the Organ of Corti.
13. Your car sound system seems perfect in the morning, but it seems much louder when you start your car after school. Explain!
14. Describe the following ear related disorders: a. Otitis media b. Motion sickness